

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|---|--|---|
| Applicant's or agent's file reference TOOLZ-1104WO | FOR FURTHER ACTION | see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. |
| International application No. PCT/US02/05066 | International filing date (<i>day/month/year</i>) 22 February 2002 (22.02.2002) | (Earliest) Priority Date (<i>day/month/year</i>) 22 February 2001 (22.02.2001) |
| Applicant TOOLZ, LTD. | | |

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 8 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (See Box II).

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 15



as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.



None of the figures

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International application No.

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Box III TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

NEW ABSTRACT

A tool (802) is employed in conjunction with alignment, depth, and level detectors. The tool (802) can use all or some of these detectors. The alignment detector (804) provides an orthogonal laser line grid (806) on an incident surface when the detector has a predefined relationship with the surface. The depth detector (812) emits two sets of parallel laser planes that converge with each other. When the laser planes impact on an incident surface two sets of lines (801, 803, 805, 807) are formed. The laser lines (801, 803) from one laser plane set move closer to the lines (805, 807) from the other laser plane set as the depth detector (812) moves closer to the surface - showing changes in depth or distance. The level detector employs two converging laser planes. An operator positions the level detector above an incident surface, so the laser planes' line of intersection appears on the surface if the surface is level. If the surface is not level, lines separate from each laser plane appear on the surface - signaling the need for a level adjustment. Some versions of the tool have the ability to detect their own orientation and make adjustments based on the orientation. Example tools include nail guns, jigsaws, circular saws, routers, and drills.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/05066

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 19/00; G05B 19/18; G03H 1/12; G01N 21/86; G01V 8/00; G01B 11/00
US CL : 700/192, 193, 59; 359/11; 250/559.33; 356/400

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 700/192, 193, 59, 56; 359/11, 702/94, 150; 250/559.33; 356 /400

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST, search terms: align, alignment, orient, laser, beam, optical, tool, pattern, grid, leveler, leveling, depth

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| X | US 2002/0162978 A1 (BUTLER et al.) 07 November 2002 (01.11.2002), entire publication. | 1-47 |
| Y | US 6,088,623 (YOWLER et al.) 11 July 2000 (11.07.2000), column 8, lines 22-34, 58-60; column 10, lines 22-52; column 11, lines 9-25. | 1, 18, 23, 43 |
| Y | US 4,422,150 (KELLER et al.) 20 December 1983 (20.12.1983), column 6, lines 3-20, 37-68; column 7, lines 1-20. | 1, 18, 23, 43 |
| A | US 5,224,052 (HAMAR) 29 June 1993 (29.06.1993). | 1-10 |
| A | US 5,897,611 (CASE et al.) 27 April 1999 (27.04.1999). | 1-10 |
| A, E | US 6,473,672 B1 (HOLDGREVE) 29 October 2002 (29.10.2002). | 1 |
| A | US 6,092,031 (YASUDA) 18 July 2000 (18.07.2000). | 1 |
| A | US 5,383,118 (NGUYEN) 17 January 1995 (17.01.1995). | 1 |
| A | JP 2-148016 (TAKAHASHI et al.) 06 June 1990 (06.06.1990). | 1, 11, 18 |

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search

16 November 2002 (16.11.2002)

Date of mailing of the international search report

06 JAN 2003

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

Crystal J. Barnes

Telephone No. 703.306.5448